



Attorney Docket No. 20347/111656

**ABSTRACT OF THE DISCLOSURE**

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Nucleic acid sequences coding for a protein having  $\beta,\beta$ -carotene 15,15' enzyme [[-dioxygenase]] activity and their uses in diagnostics, the synthesis of vitamin A and methods for the introduction of the  $\beta,\beta$ -carotene 15,15' enzyme [[-dioxygenase]] cDNA 10 into host cells are disclosed.